

Scientific Notation

Homework: Finish worksheet- Pre-Test

1. Is -8.3 a rational number? Explain why.

2. What is 3 cubed?

3. How would you solve

$$(y^2)^4$$

SCIENTIFIC NOTATION

was created to
simplify the writing
of very large and
very small numbers.

**These numbers are
written in scientific
notation:**

$$4.7 \cdot 10^{23}$$

$$2.35 \cdot 10^4$$

$$1.004 \cdot 10^{-12}$$

**These numbers are
Not written in
scientific notation:**

$$47,235,000,000$$

$$12.35 \cdot 10^{19}$$

$$0.47 \cdot 10^5$$

**These numbers are written
in scientific notation:**

$$4.7 \cdot 10^{23}$$

$$2.35 \cdot 10^4$$

$$1.004 \cdot 10^{-12}$$

These numbers are **NOT**
written in scientific notation:

47,235,000,000

$12.35 \cdot 10^{19}$

$0.47 \cdot 10^5$

Which of these numbers is written in scientific notation?

a) $47.23 \cdot 10^9$

b) $1.035 \cdot 10^{-13}$

c) $0.000\ 47 \cdot 10^{-4}$

**Write each of these numbers
in scientific notation:**

1) 47,000,000,000

2) 23,500,000,000,000,000

3) 470

4) 0.000 056

5) 0.000 000 000 000 874

Write each of these numbers in standard notation:

1) $4.7235 \cdot 10^6$

2) $1.035 \cdot 10^{-4}$

3) $7.098 \cdot 10^{-8}$

4) $5.047 \cdot 10^{10}$

5) $8.3902 \cdot 10^3$

SCIENTIFIC NOTATION

**The average
human brain has
about 100 billion
nerve cells.**

SCIENTIFIC NOTATION

The average human brain has about 100 billion nerve cells.

100,000,000,000

SCIENTIFIC NOTATION

100,000,000,000 =

SCIENTIFIC NOTATION

100,000,000,000 =

1.0×10^{11}

SCIENTIFIC NOTATION

The average
human scalp has
about 100
thousand hairs.

SCIENTIFIC NOTATION

The average human scalp has about 100 thousand hairs.

100,000

SCIENTIFIC NOTATION

100,000 =

SCIENTIFIC NOTATION

100,000 =

1.0×10^5

SCIENTIFIC NOTATION

The average human
blinks his/her eyes
6,205,000 times
each year.

SCIENTIFIC NOTATION

6,205,000 =

SCIENTIFIC NOTATION

6,205,000 =

6.205×10^6

SCIENTIFIC NOTATION

The average human heart will beat about 3,250,000,000 times in its lifetime.

SCIENTIFIC NOTATION

3,250,000,000 =

SCIENTIFIC NOTATION

3,250,000,000 =

3.25×10^9

SCIENTIFIC NOTATION

Human blood travels
316,800,000 feet
each day in its
journey through the
body.

SCIENTIFIC NOTATION

316,800,000 =

SCIENTIFIC NOTATION

316,800,000 =

3.168×10^8

SCIENTIFIC NOTATION

There are
3,968,000,000,000
insects in the air
above California.

SCIENTIFIC NOTATION

3,968,000,000,000 =

SCIENTIFIC NOTATION

3,968,000,000,000 =

3.968×10^{12}

SCIENTIFIC NOTATION

There are
93,600,000 bacteria
living in the armpits
of the average 7th
grade student.

SCIENTIFIC NOTATION

93,600,000 =

SCIENTIFIC NOTATION

93,600,000 =

9.36×10^7

SCIENTIFIC NOTATION

The average 7th
grader sheds
0.0015 pounds of
skin in a day.

SCIENTIFIC NOTATION

0.0015 =

SCIENTIFIC NOTATION

0.0015 =

1.5×10^{-3}

SCIENTIFIC NOTATION

The average 7th
grader's brain
weighs
0.00274 tons.

SCIENTIFIC NOTATION

0.00274 =

SCIENTIFIC NOTATION

0.00274 =

2.74×10^{-3}

SCIENTIFIC NOTATION

**Mucus moves
through the average
7th grader's body at
a speed of
0.0001864 mph.**

SCIENTIFIC NOTATION

0.0001864 =

SCIENTIFIC NOTATION

0.0001864 =

1.864×10^{-4}

SCIENTIFIC NOTATION

TO MULTIPLY NUMBERS
WRITTEN IN SCIENTIFIC
NOTATION,

MULTIPLY THE DECIMAL
PARTS AND THEN MULTIPLY
THE POWERS OF TEN.

SCIENTIFIC NOTATION

$$(2 \cdot 10^3) \cdot (3 \cdot 10^5) =$$

SCIENTIFIC NOTATION

$$(2 \cdot 10^3) \cdot (3 \cdot 10^5) =$$

$$6 \cdot 10^8$$

SCIENTIFIC NOTATION

$$(8 \cdot 10^4) \cdot (6 \cdot 10^9) =$$

SCIENTIFIC NOTATION

$$(8 \cdot 10^4) \cdot (6 \cdot 10^9) =$$

$$48 \cdot 10^{13}$$

SCIENTIFIC NOTATION

$$(8 \cdot 10^4) \cdot (6 \cdot 10^9) =$$

$$48 \cdot 10^{13} =$$

SCIENTIFIC NOTATION

$$(8 \cdot 10^4) \cdot (6 \cdot 10^9) =$$

$$48 \cdot 10^{13} =$$

$$4.8 \cdot 10^{14}$$

SCIENTIFIC NOTATION

$$(9.2 \cdot 10^5) \cdot (2.3 \cdot 10^7) =$$

SCIENTIFIC NOTATION

$$(9.2 \cdot 10^5) \cdot (2.3 \cdot 10^7) =$$

$$21.16 \cdot 10^{12}$$

SCIENTIFIC NOTATION

$$(9.2 \cdot 10^5) \cdot (2.3 \cdot 10^7) =$$

$$21.16 \cdot 10^{12} =$$

SCIENTIFIC NOTATION

$$(9.2 \cdot 10^5) \cdot (2.3 \cdot 10^7) =$$

$$21.16 \cdot 10^{12} =$$

$$2.116 \cdot 10^{13}$$

SCIENTIFIC NOTATION

$$(3.2 \cdot 10^{-5}) \cdot (1.5 \cdot 10^{-3}) =$$

SCIENTIFIC NOTATION

$$(3.2 \cdot 10^{-5}) \cdot (1.5 \cdot 10^{-3}) =$$

$$4.8 \cdot 10^{-8}$$

SCIENTIFIC NOTATION

$$(6.8 \cdot 10^{-5}) \cdot (3.45 \cdot 10^{-13}) =$$

SCIENTIFIC NOTATION

$$(6.8 \cdot 10^{-5}) \cdot (3.45 \cdot 10^{-13}) =$$

$$23.46 \cdot 10^{-18}$$

SCIENTIFIC NOTATION

$$(6.8 \cdot 10^{-5}) \cdot (3.45 \cdot 10^{-13}) =$$

$$23.46 \cdot 10^{-18} =$$

SCIENTIFIC NOTATION

$$(6.8 \cdot 10^{-5}) \cdot (3.45 \cdot 10^{-13}) =$$

$$23.46 \cdot 10^{-18} =$$

$$2.346 \cdot 10^{-17}$$

SCIENTIFIC NOTATION

$$(3.7 \cdot 10^{-12}) \cdot (5.9 \cdot 10^{23}) =$$

SCIENTIFIC NOTATION

$$(3.7 \cdot 10^{-12}) \cdot (5.9 \cdot 10^{23}) =$$

$$21.83 \cdot 10^{11}$$

SCIENTIFIC NOTATION

$$(3.7 \cdot 10^{-12}) \cdot (5.9 \cdot 10^{23}) =$$

$$21.83 \cdot 10^{11} =$$

SCIENTIFIC NOTATION

$$(3.7 \cdot 10^{-12}) \cdot (5.9 \cdot 10^{23}) =$$

$$21.83 \cdot 10^{11} =$$

$$2.183 \cdot 10^{12}$$

SCIENTIFIC NOTATION

TO DIVIDE NUMBERS
WRITTEN IN SCIENTIFIC
NOTATION,

DIVIDE THE DECIMAL PARTS
AND THEN DIVIDE THE
POWERS OF TEN.

SCIENTIFIC NOTATION

$$(8 \cdot 10^6) \div (2 \cdot 10^3) =$$

SCIENTIFIC NOTATION

$$(8 \cdot 10^6) \div (2 \cdot 10^3) =$$

$$4 \cdot 10^3$$

SCIENTIFIC NOTATION

$$(3.402 \cdot 10^5) \div (6.3 \cdot 10^7) =$$

SCIENTIFIC NOTATION

$$(3.402 \cdot 10^5) \div (6.3 \cdot 10^7) =$$

$$0.54 \cdot 10^{-2}$$

SCIENTIFIC NOTATION

$$(3.402 \cdot 10^5) \div (6.3 \cdot 10^7) =$$

$$0.54 \cdot 10^{-2} =$$

SCIENTIFIC NOTATION

$$(3.402 \cdot 10^5) \div (6.3 \cdot 10^7) =$$

$$0.54 \cdot 10^{-2} =$$

$$5.4 \cdot 10^{-3}$$

SCIENTIFIC NOTATION

The End